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GARAGE DOOR

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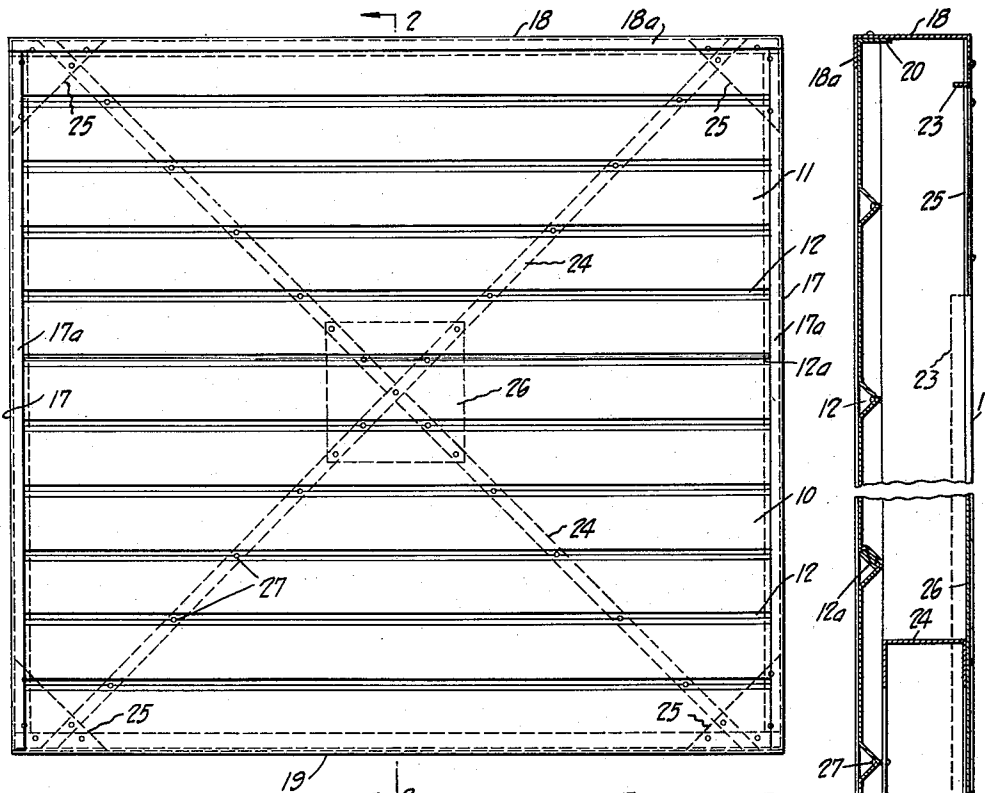


FIG. 1.

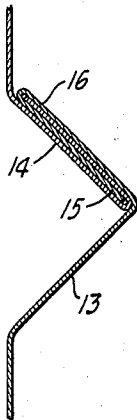


FIG. 4.

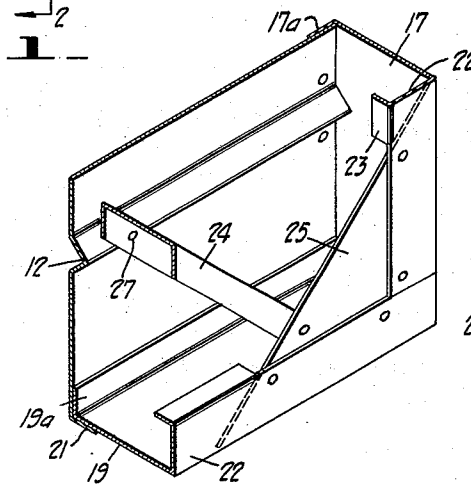


FIG. 3.

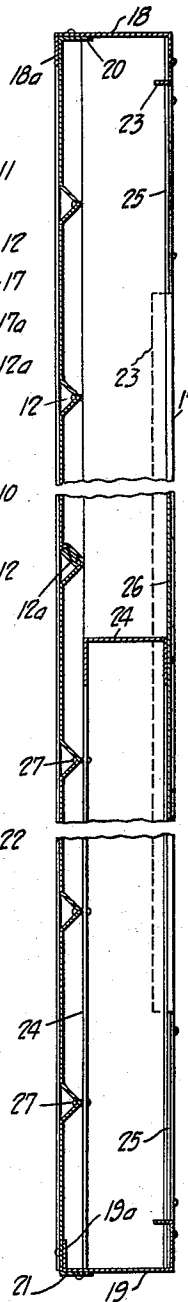


FIG. 2.

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GARAGE DOOR

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1 Claim. (Cl. 189—46)

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The present invention relates to metallic building structures and more particularly to door construction of a kind especially adapted for use as a garage door of the overhead type.

Garage doors of the type referred to have heretofore usually been of wooden construction, principally because of the greater weight and cost of metal doors when constructed in such manner as to possess the necessary strength and rigidity under known methods of construction and design. A heavy door requires correspondingly heavy counter-balance springs and run-ways with resulting excessive cost besides difficulty in operation due to weight.

The main objects of this invention are to provide a light but rigid door by employing panels and framing members of light metal, such as galvanized steel, aluminum, or the like, and so strengthening the door panel proper as to make it resistant to stresses met during use while at the same time presenting a pleasing external appearance harmonizing with the building walls. Another object is to provide a construction which will be economical and easily assembled.

The foregoing and other advantages made apparent by the more specific description to follow are attained by the arrangement of parts and details of construction hereinafter described and claimed and illustrated in the accompanying drawing where,

Figure 1 is a plan or face view of the door with the parts behind indicated in broken lines;

Figure 2 is a transverse section of the door on the line 2—2 of Figure 1;

Figure 3 is an enlarged detail view of the lower left hand corner of the door seen in Figure 1 as viewed from behind, and

Figure 4 is an enlarged sectional view of an interlocking joint between sections forming the door panel.

In the preferred form of the invention the door panel is preferably composed of two sections 10 and 11 to permit use of metal sheets of standard width for forming the sections. Each section is formed with parallel grooves 12 extending from side to side of the door and spaced to present the effect of a series of beveled planks meeting edge to edge and giving the appearance of wood construction while greatly reinforcing the panel sections. In order to facilitate connection of the two sections forming the door panel and at the same time preserve uniform spacing with the grooves 12 the metal at the meeting edges of the respective sections is turned inward as at 13, 14 (Figure 4), at the same angle as the sides

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of grooves 11, 12, and each edge bent upon itself to form complementary interlocking flanges or hooked portions 15, 16, lying against the back of angled portion 14, which permit the sections to be joined during assembly by sliding one hooked edge within the other by movement of one section longitudinally on the other. This construction provides a close four-ply seam or joint between the sections, as seen in Figures 2 and 4, while forming a groove 12^a corresponding to the other grooves 11, 12, of the door panel.

The light metal door panel above described forms the outer surface of a door structure which includes lateral channel members 17, a top channel member 18 and a bottom channel member 19. The lateral members 17 have forward webs 17^a thereof overlapping the face of the door panel along its lateral margins and the top member 18 similarly overlaps the upper margin, as at 18^a, and contacts an inwardly directed flange 20 formed as an angular extension of the upper edge of panel section 11, to which it is secured. The bottom member 19, however, has its corresponding forward web 19^a lying inside the lower margin of the door panel and is secured to an angular extension 21 of the panel edge overlapping the under side of member 19. This construction at the lower edge of the door permits better shedding of water without chance of leakage into the channel of member 19. The respective channel members 17, 18 and 19 all have rear or inner webs 22 of substantially double the width of the outer or opposite webs 17^a, 18^a and 19^a and are formed with inward angularly extending flanges 23 to form, with the main channel members, what in effect constitutes secondary channels members serving to add additional strength to the door frame.

To furnish rear support for the panel sections and brace the frame, a crossed brace consisting of channel bars 24 is provided. These bars are joined to each other in any desired manner centrally of the door panel and are secured at the ends to the terminal portions of the upper and lower frame channels 18, 19 adjacent the corners of the door frame. Corner gusset plates 25 are secured to the inner face of the webs 22 and to the ends of channel bars 24, as best seen in Figure 3, the flanges 23 being cut-away to accommodate the plates 25. The central junction of channel bars 24 is preferably braced by a central gusset plate 26 riveted or otherwise fixed to the respective cross-bars. To further rigidify the door structure and effectively strengthen the light metal of the door panel each apex of the

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V-shaped grooves in the panel is riveted or otherwise fixed, as at 27, to the adjacent flanges of crossed braces 24 thus effectively preventing any bulging or other movement of the door panel with respect to the braces backing it.

By means of the particular arrangement and interconnection of parts above described it is made possible to employ unusually light weight metal plates and shapes in garage door construction with the result that a light, easily supported, and easily handled overhead type door is provided without any sacrifice of necessary strength and rigidity.

The preferred form of construction above described obviously is subject to variations in details of construction without departure from the invention as hereinafter claimed.

What is claimed is:

A metal garage door comprising a rectangular sheet metal panel formed with spaced parallel V-shaped grooves extending from side to side of the panel and in parallelism with the upper and lower edges thereof, said grooves being uniformly inwardly directed out of the plane of the panel to dispose the apices of said grooves at the rearward side of the panel, rearwardly directed flanges extending normal to the panel at the upper and lower edges thereof, reinforcing side and upper and lower frame members in the form of channels secured to the edges of said panel, said side and upper channels having forward flanges in overlapping relation to the side edges and upper flange of said panel, means securing the intersecting ends of said channels together,

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and reinforcing means for the body of said panel and for said channels consisting of a pair of mutually perpendicular channels disposed at the rearward side of said panel and extending substantially diagonally of said panel, said pair of channels having forward flanges parallel to the plane of said panel secured to each of the apices of the grooves of said panel, and said pair of channels having their ends fitting within said upper and lower reinforcing channels and secured thereto.

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